2012

A COMMUNITY GUIDE TO

CLIMATE ACTION IN BOULDER

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CLIMATE ACTION IN BOULDER

So Boulder is working to address climate action?

Yes. Like many other U.S. cities, Boulder created a Climate Action Plan in 2006 to address climate change and manage greenhouse gas emissions. Usually referred to as the CAP, the plan laid out a set of aggressive programs and services aimed at reducing local greenhouse gas emissions from a variety of carbon sources.

First, what exactly are greenhouse gases?

Many chemical compounds in the Earth's atmosphere act as "greenhouse gases." These gases allow sunlight to enter the atmosphere, but when sunlight strikes the Earth's surface some of it is reflected back towards space as infrared radiation, or heat. Greenhouse gases absorb this infrared radiation, trapping the heat in the atmosphere. Common greenhouse gases include carbon dioxide (CO_2), methane and ozone.

There is increasing scientific consensus that carbon dioxide and other greenhouse gases emitted into the atmosphere have a profound effect on the Earth's climate, increasing the risk to everyone. These risks range from increased extreme weather events; changing rainfall and crop productivity patterns; and migration of infectious diseases. According to studies on the impacts of climate change on the Rocky Mountain region, climate change in Colorado will likely mean diminished snow pack; increased drought; more insect outbreaks in forests; an earlier and longer wildfire season; reduced habitat for native species; and less economic growth.

While some carbon emissions occur naturally, it is a well researched fact that the combustion of fossil fuels releases greenhouse gases—namely carbon dioxide—into the atmosphere. This is a worldwide crisis. While the city recognizes that Boulder's actions are far too small to impact global greenhouse gas emissions trends, it also recognizes that the cost of not taking action could be very high. Boulder is committed to improving the economic, environmental, and social sustainability of our community. Boulder also seeks to encourage and inspire other communities around the country to implement greenhouse gas emissions reduction programs in an effort to slow global warming.

Where do Boulder's emissions come from?

The city maintains an inventory of the greenhouse gas emissions that are estimated to be generated by activities in the Boulder community. Approximately 97 percent of Boulder's emissions are from energy and transportation:

60% Electricity
21% Transportation
17% (or less) Natural gas
3% (or less) Waste

That's why we developed the Climate Action Plan (CAP)—to comprehensively address all of our greenhouse gas emissions.

Where did the CAP come from?

The CAP's history started in 2002, when Boulder City Council passed a resolution encouraging our community to reduce its greenhouse gas emissions to the target established by the Kyoto Protocol—seven percent below 1990 levels by 2012. To do this, we needed to cut emissions approximately 24 percent between 2005 and 2012.

In 2006, the city and the community created the CAP to provide guidance on how to meet the Kyoto Protocol target through policies, programs, and individual efforts.

That same year, Boulder voters overwhelmingly supported the call to action and became the first in the nation to tax their own energy use to reduce greenhouse gas emissions and address the impact of human activity on climate change.

The tax, which has raised between $600,000 and $1.8 million a year, is known as the CAP tax. Boulder voters will be asked whether they are willing to renew the CAP tax this November.

What has been the purpose of the CAP?

The CAP has provided a framework to guide Boulder towards a sustainable future by reducing greenhouse gas emissions from current levels, while meeting the needs of present and future generations. The initial plan was also built on environmental policies and goals found in the Boulder Valley Comprehensive Plan (BVCP). This joint plan between the city and Boulder County informs and guides our shared responsibility for planning and development in the Boulder Valley, as well as outlines best practices developed by other cities and states. In 2009, the CAP was re-tooled based on community input and lessons learned in the first two years. In 2010, new policies and programs were developed in collaboration with community partners. These were fully launched in January 2011. One of the major focuses of the CAP has

been energy since electricity and natural gas emit by far the most greenhouse gases in Boulder County.

CAP FUNDING

How has the CAP tax supported the CAP and our community's desire to decrease greenhouse gas emissions?

In 2006, Boulder voters overwhelmingly supported the call to action and became the first community in the nation to tax their own energy use to reduce greenhouse gas emissions and address the impact of human activity on climate change.

Since it was passed in 2006, the CAP tax has provided between $600,000 and $1.8 million a year to fund predominately energy efficiency and conservation programs for Boulder homes and businesses.

In November 2012, voters will determine whether or not to extend the tax, which expires in March 2013.

The CAP tax funds a majority of Boulder's greenhouse gas reduction efforts, including significant energy initiatives and some transportation programs. Since more than 97 percent of our greenhouse gas emissions can be attributed to energy and transportation, the CAP tax helps address these major areas for improvement.

How much do I actually pay for the CAP tax?

*The average residential account pays approximately **$21/year** toward the CAP tax.*

Since the CAP tax is based on carbon consumption, payment depends on how much electricity each customer uses. The table below indicates the tax rate and average annual CAP tax payment for each sector:

ELECTRICITY USER	TAX RATE	AVG. ANNUAL TAX
Residential	**$0.0049/kWh**	**$21**
Commercial	**$0.0009/kWh**	**$94**
Industrial	**$0.0003/hWh**	**$9,600**

What has my CAP tax been spent on?

BUSINESS PROGRAMS OFFERED INCLUDE:

LED Exit Sign Exchange / 2007
ClimateSmart at Work Audits / 2007-2009
Small-Building Tune-Ups / 2010
10 for Change / 2008-present
Commercial EnergySmart / 2011-present

RESIDENTIAL PROGRAMS THAT HAVE BEEN OFFERED INCLUDE:

Weatherization / 2007
LED Holiday Light Exchange / 2007-2008
Efficient Lighting Coupons / 2007-2008
Multi-family Performance Program / 2007-2009
Neighborhood Sweeps / 2007-2010
Solar Thermal and Insulation Rebate Programs / 2008
CU's Energy Green Teams and Greek Sustainability Program / 2010-present
ReNew Our Schools PTO Fundraiser / 2011
Residential Energy Action Program / 2008-2010
Residential EnergySmart, includes support for SmartRegs compliance / 2011-present

That's a long list. Are these programs working?

Recently, the city contracted Rocky Mountain Institute (RMI), a world-renowned, local environmental consultant firm, to review Boulder's work on CAP tax-funded energy efficiency programs. RMI's analysis found that while the city will not reach the Kyoto Protocol goals set for this year, Boulder has used your CAP tax dollars effectively to invest in programs that are reducing greenhouse gas emissions at a reasonable cost.

The RMI consultants advise continued support and funding for these programs and encourage the community to make even more substantial energy efficiency improvements to address climate change.

Overall, RMI developed the following key findings regarding CAP tax-funded programs:

1. Boulder has attained impressive energy savings and emission reductions, and is well positioned to achieve future emissions reduction targets.

2. While the city will not reach its Kyoto Protocol carbon emissions reduction goal this year (something the city has known and informed the community about previously), Boulder has generated significant carbon savings at a reasonable cost.

3. Residential lighting replacement programs offered the most cost effective savings.

4. Renewables programs in Boulder, such as the Solar Grant Program, have been far more cost effective than city-run programs in other states.

5. EnergySmart programs have shown impressive results in helping people put energy efficiency recommendations into action. While they have had significant and anticipated start-up costs, these programs are expected to gain in cost effectiveness, providing greater emission reductions per dollar invested.

6. As part of its analysis, RMI recommended that Boulder go beyond the simple programs and begin encouraging residents and businesses to think long-term about their energy use, buildings, and investment choices. The full report is available at www.BoulderEnergyFuture.com.

I heard a lot about the idea of municipalization last year. Is this part of the CAP effort?

How much energy we use and how we use it is a fundamental part of planning for Boulder's Energy Future, but climate action work and the creation of a local energy utility are not inextricably linked.

The City of Boulder provides a number of services and strategies, many funded by the CAP tax, to help our community reduce its energy use and reduce our greenhouse gas emissions. These efforts were a fundamental part of Boulder's environmental commitment before the recent exploration of municipalization began—and if the tax that funds them is extended by voters this November, these programs and services will remain at the core of our efforts. This is true whether the city decides to create a local utility or not.

Using less energy is only part of the picture, although it's a big part. Our community understands that where our energy supply comes from really matters. The more we reduce our dependence on fossil fuels and tap renewable sources of energy to generate the electricity we use, the less greenhouse gases we emit, contributing to a healthier and more sustainable community. That is one of the fundamental reasons the city has embarked on the study of municipalization.

At the same time, though, we know that the very best way to reduce greenhouse gas emissions and address climate change, right here, right now, is to use less energy to begin with. That is what the city's programs are all about. That goal will be as urgent tomorrow as it is today, regardless of the outcome of the municipalization study.

CAP PROGRAMS

What programs can help me decrease my greenhouse gas emissions?

Whether you're a business owner, employee, resident, or renter, there are programs for you. Here are a few programs funded by our CAP tax that can help you contribute to our community's greenhouse gas reduction goals:

ARE YOU A HOMEOWNER?

EnergySmart

EnergySmart is the easy way to a more comfortable home that saves energy and money. EnergySmart will help you find the sneaky ways your home is wasting energy, as well as great deals on energy efficiency upgrades. You'll even get your own expert Energy Advisor to install free energy saving items; help you prioritize energy efficiency upgrades; collect and evaluate bids from qualified contractors; and find and apply for rebates and financial incentives. **www.EnergySmartYES.com / 303.544.1000**

Solar Rebates

Boulder residents and businesses that have installed photovoltaic or solar thermal systems may be eligible for a rebate. Solar rebates come from the city's Renewable Energy Fund. The remainder of the Renewable Energy Fund is dedicated to rehabilitation or installation of renewable energy systems, especially on low- or moderate-income housing and nonprofit organizations.

www.bouldercolorado.gov/ClimateAction/RampUpRenewables

ARE YOU A RENTER?

SmartRegs

SmartRegs requires all rental housing, which represents about half of Boulder's housing stock, to meet an energy efficiency standard by 2019. Ask your landlord to enroll your property in EnergySmart, and a licensed SmartRegs inspector will complete the prescriptive checklist for your home; provide expert advice on the most cost-effective energy efficiency measures; assist with contractor selection and rebate paperwork; and install FREE energy-saving light bulbs and shower heads.

www.bouldercolorado.gov/SmartRegs

ARE YOU A BUSINESS?

EnergySmart

Schedule a FREE EnergySmart Assessment for your business to identify energy-saving

opportunities. Your EnergySmart Advisor will help you prioritize your opportunities; find contractors; and identify financial incentives. Advisors are available to assist in optimizing and upgrading existing equipment, and can help with all stages of project implementation. **www.EnergySmartYES.com / 303.441.1300**

10 for Change
Join over 110 Boulder area businesses that have committed to reducing their energy use and waste by at least 10 percent. 10 for Change provides education on sustainability best practices; tours of member businesses; networking; connections with EnergySmart; and publicity through marketing, events, and an annual awards ceremony. **www.10forChange.net**

CAP ACCOMPLISHMENTS

Ok, so I understand what programs have been offered and how they are funded, but what specifically has CAP accomplished so far?
The Boulder community's climate commitment is carried out in many ways, from our personal day-to-day choices to efforts by businesses to incorporate sustainable practices, to the integrated programs and strategies offered by the city to reduce greenhouse gas emissions. The current CAP is funded in part through a voter-approved tax on electricity use, as described earlier in this guide. These tax funds have supported aggressive energy efficiency programs and renewable energy investments that are considered national models. Since the adoption of CAP in 2006, Boulder has made significant progress towards its climate action goals:

1. We have lessened our strong upward trend in greenhouse gas emissions and, in some years, achieved real reductions.

2. We have some of the highest percentages of bicycle commuters and hybrid vehicle ownership in the country.

3. We divert over 40 percent of our waste to recycling and composting instead of landfills.

4. We have helped thousands of homes, apartments and businesses implement energy efficiency improvements, some of which will last 20 or more years.

5. We have one of the highest rates of installed solar capacity per capita in the US among similarly sized communities.

That sounds good, but show me the plan.
The CAP, as implemented over the past several years, has six focus areas aimed at helping our community reduce greenhouse gas emissions:

1. REDUCE USE / 2. BUILD BETTER / 3. RAMP UP RENEWABLES

4. TRAVEL WISE / 5. WASTE NOT / 6. GROW GREEN

The focus areas are based on the key activities that create greenhouse gas emissions and the opportunities for reducing them. Each focus area includes overall goals, as well as programs and policies that have led to measurable achievements. These are described below. For more information on specific programs offered, see page 7.

REDUCE USE
This is the biggest source of Boulder's greenhouse gas emissions, and the area where we can continue to make the biggest difference. Did you know that 59.6 percent of Boulder's greenhouse gas emissions are due to the electricity used in buildings? When you also factor in natural gas use, this accounts for a whopping 76.3 percent of Boulder's greenhouse gas emissions.

The Plan
Improve energy efficiency of existing buildings.
Promote energy-conserving behavior.

The Programs
EnergySmart, 10 for Change, and SmartRegs all help residents and businesses reduce energy use, increase comfort, and save money.

The Achievements
More than 1,300 unique businesses and almost 4,000 homes in Boulder have participated in EnergySmart; over 100 Boulder businesses have joined 10 for Change; and more than 1,795 properties have achieved SmartRegs compliance.

BUILD BETTER
Energy efficiency is most effective when it is designed into buildings from the beginning.

The Plan
Maximize energy efficiency in new buildings and major remodels.

The Programs
Boulder's Green Building and Green Points program and the city's commercial energy code encourage the use of sustainable remodeling and building methods and technologies to conserve energy, water and other natural resources.

The Achievements
Building more efficiently in 2010 and 2011 helped avoid an estimated 1,850 $mtCO_2$ from residential buildings and 8,230 $mtCO_2$ from commercial buildings. In sum, these high-performance building codes avoided the carbon equivalent to taking about 1,800 cars off the road!

RAMP UP RENEWABLES

How much energy we use is just one side of a coin. Ramp Up Renewables aims to change the fuel sources of our electricity. About 85 percent of our energy comes from fossil fuels—just over 60 percent of Boulder's electricity is currently sourced from coal and another 24 percent comes from natural gas. Reducing carbon emissions requires shifting the source of our energy from fossil fuels to renewable resources, such as hydroelectricity, solar, wind generation and geothermal heating to diversify the sources of our power.

The Plan
Promote use of renewable energy sources for individual buildings and sites.
Increase renewable sources in our regional energy supply.

The Programs
Solar Rebates and Solar Grants help our community increase solar. Nonprofits and residents in affordable housing may be eligible for Solar Grants, and all residents are eligible for rebates on solar photovoltaic (PV) or solar thermal projects.

The Achievements
11.5 megawatts (MW) of solar PV have been installed in Boulder. That's enough to power about 2,274 homes each year.

Since 2007, more than $30,000 in Solar Rebates has been distributed to over 230 residents and businesses in Boulder.

From 2008 to 2011, $274,000 in Solar Grants has been awarded to 24 recipients.

TRAVEL WISE

Vehicle fuel accounts for over 20 percent of Boulder's greenhouse gas emissions. Investments in public transit and multi-use paths have achieved significant reductions in vehicle miles traveled.

The Plan
Increase the percentage of trips made by public transit, bike, and walking.
Encourage the use of low-emission vehicles over traditional vehicles.

The Programs
Bus pass programs (including programs for neighborhoods, Downtown Boulder workers, and businesses), multimodal transportation investments like bike path development, and the Boulder B-Cycle bike share program, provide affordable, convenient and enjoyable alternative transportation options.

The Achievements
Boulder B-cycle, a public bike sharing system launched in 2011. As of August 2012, Boulder B-cycle had 1,790 annual members and 11,200 people had used the system, pedaling 100,566 miles, offsetting 170,000 pounds of carbon, and burning 7.1 million calories.

In 2011, 69,425 people who live, work or study in Boulder had access to Eco Passes for public transportation.

In 2008, Boulder became one of only three cities to be awarded the Platinum level Bicycle Friendly Community status by the League of American Bicyclists. The platinum designation is the highest honor a community can receive. The designation is for a four-year term.

Boulder was named America's Top 50 Bike-Friendly Cities (#3), *Bicycling Magazine*, May 21, 2012.

WASTE NOT

Landfilled solid waste accounts for about 2.5 percent of Boulder's greenhouse gas emissions. Decomposing landfill waste emits methane, a greenhouse gas over 20 times as potent as carbon dioxide. While Boulder does not have a local landfill (our waste is shipped to Erie, Colorado), we still count the emissions attributed to Boulder's waste disposal in the greenhouse gas inventory.

The Plan
Reduce the amount of waste going to landfills.

The Programs
Curbside composting, a community compost facility, yard and wood waste drop off centers, the Center for Hard-to-Recycle Materials, and the ReSource Yard make it easy for our community to dispose (and reuse!) all kinds of waste.

The Achievements
In 2011, 42 percent (approximately 51,500 tons, the equivalent weight of almost 29,500 Subaru Outbacks) of Boulder's waste stream was diverted from the landfill and sent to a recycling or compost facility instead.

In 2011, City Council approved Site and Use Reviews for the phased development of 6400 Arapahoe. Development will begin in the fall of 2012 and continue into the spring of 2013. Upon completing development, the Eco Cycle office, commercial hauling operation and the Center for Hard to Recycling Materials (CHaRM), and the ReSource Yard will operate at the site.

GROW GREEN

Trees help reduce greenhouse gas emissions by sequestering CO_2. They also create shade and wind protection, reducing building heating and cooling needs. Other benefits include improving air quality, protecting water sources, and reducing storm water runoff.

The Plan

Plant more trees.
Protect the existing urban forest.

The Programs

Tree planting, tree care, tree pruning, tree safety inspection, and integrated pest management help maintain a healthy urban forest in Boulder.

The Achievements

Boulder planted 509 trees in 2011.

Boulder has received Tree City USA designation by the National Arbor Day Foundation every year since 1984.

Eighty-three trees were planted in Foothills Parkway median between Baseline and Table Mesa in cooperation with Public Works Streets and Bikeways Maintenance work-group. Forestry received a grant ($5,000) from the city of Denver Mile High Million program to purchase these trees. Public Works installed a low water use irrigation system for the trees. Forestry purchased the remaining trees (what the grant didn't pay for), planted and tank watered the trees until the irrigation system was installed.

LOOKING AHEAD

If we've been doing such a good job, why haven't we reached our goal?

Boulder has made progress in slowing the growth of greenhouse gas emissions, but we will not meet our Kyoto Protocol goal by 2012 as originally hoped. This is largely because Colorado has one of the most carbon-intensive sources of electricity in the country. Currently, we are predominantly fueled by coal and natural gas. The good news is that we have leveled off what was expected to be a significant increase in emissions, and in some areas, started to achieve modest reductions. As we move forward, we are seeking to improve programs and establish a new climate action commitment that takes into account all we have learned about what it will take reduce our greenhouse gas emissions even more.

Currently, Boulder's power supply is generated and provided by a private company. Our community's inability to change the carbon-intensive fuel sources used to create our electricity supply is a significant challenge. The CAP programs that have decreased energy use have been effective, but some of these successes have been offset by coal-based power generation and the slowly recovering economy, which has led to growth and some resulting increases in energy usage.

Also, while there are best practices, there is no exact science to reducing greenhouse gas emissions on the local level or to effectively driving behavior change. There is an inherent learning curve in finding the best ways to motivate and support Boulder businesses and residents to reduce their energy use. This learning curve is a factor in the speed of progress toward our greenhouse reduction goals.

If Boulder voters approve a CAP tax extension in November, what will the money be used for? And why does the city think continued programs will work?

Over the past several months, the City of Boulder has been working to identify the most effective uses for the CAP tax moving forward. To assist in this work, the city commissioned two independent studies to: 1) evaluate the cost effectiveness of CAP tax programs to date (i.e., "Looking Back," a report prepared by Rocky Mountain Institute or RMI mentioned earlier); and 2) assess which programs should continue or be refined if the CAP tax is extended and what programs or initiatives not currently funded should be considered for inclusion moving forward (i.e., "Looking Forward," a report prepared by the Brendle Group, an external consultant). Based on the findings of RMI's and Brendle Group's analyses, staff's experience, community input, previous feedback from the Environmental Advisory Board, and direction from council, the city developed recommended 2013 energy efficiency initiatives if the tax is extended.

If voters approve an extension of the CAP tax, the city and its consultants are recommending a new and enhanced investment strategy that:

1. Consolidates and "ramps up" existing commercial programs and makes these the cornerstone of the community's efforts

2. Enhances residential programs

3. Stimulates market innovation through a new community competition

4. Improves tracking, reporting, and evaluation of the programs' effectiveness

So, if we adopt this approach, will all of our work be done?

While the set of recommended strategies will put us on a great path to accomplishing our goals, one thing we have learned is that reducing greenhouse gas emissions isn't

easy. Even in a place with as many smart and committed people as Boulder, this is a tough challenge that requires each and every one of us to play our part.

In addition to adopting these approaches to spending CAP tax money (if renewed), the city is also exploring a new way of thinking about climate action. For now, we are calling it Boulder's Climate Commitment. We are moving away from the idea of a city-initiated, city-centric plan with a select number of staff members responsible for achieving our goals. Instead, we are moving toward the creation of a community-wide effort with short- and long-term goals. No final decision has been made (and there will be more opportunities for the public to weigh in before we move further). But one idea is to adopt a concept called climate neutrality, which means that our community will reduce or offset the same amount of energy we use—eliminating our contribution to climate change—by a set point in time.

That sounds big. How do we achieve such a goal?

By taking small steps—a few at a time. The city and community stakeholders have started a process to develop annual and five-year targets that are easier to measure than emissions reductions and will help us, incrementally, meet our objective. For example, we may set specific, annual targets for how much solar will be installed locally, what percentage of the community's trash will be composted, and how many Eco Passes are available to Boulder residents. These are the concrete actions we can take to make Boulder the city for the future.

The city is also putting into place a more sophisticated data tracking system so that we can regularly report out how we, as a community, are doing on short-term targets. The impact of each of these is expected to be cumulative, so over time we will be able to reach the end goal.

With this kind of an approach, the possibility of a new way of addressing our energy supply and a renewed community-wide commitment to change, the Brendle Group's analysis (which can also be found at www.BoulderEnergyFuture.com) indicates that we will continue to see significant results, particularly within the next five to 10 years.

How will approving the CAP tax extension affect my taxes? And how long will I be agreeing to pay this?

The average residential customer pays $21 a year to support CAP tax-funded initiatives. This is a tax that has been in place for five years and is currently collected by Xcel Energy as a part of your energy bill. A renewal of the tax means continuation of the status quo. It will not result in any new, or higher, taxes, unless you increase your consumption of electricity. On the other hand, if you start using less energy, you'll see your taxes decrease.

The CAP tax extension would last for five years, until March 2018.

What happens if the CAP tax extension doesn't pass?

If the CAP tax is not extended, the full approach described above will not be delivered. However, three policy initiatives will continue to some extent, with limited funding. These are considered the "base level" services, which include:

1. SmartRegs: Even without support from EnergySmart's Energy Advisor services, or rebates to help reach compliance, the ordinance will still be administered.

2. A Commercial Energy Efficiency Ordinance that includes a benchmark and disclosure requirement, which was requested by City Council.

3. An enhanced program management function that includes data management, tracking and reporting, and an annual planning function to ensure continuous improvement.

To continue these priority policy initiatives without a CAP tax extension, the city would target the first-quarter revenues from the existing CAP tax (before its final expiration date of March 31, 2013) to ensure these policy priorities are accomplished for the year. During the 2014 budget process, City Council would need to decide whether to discontinue these policies; look for trade-offs through priority-based budgeting to fund these or other energy efficiency policy or program initiatives; or consider fees to achieve cost recovery for administration of SmartRegs, as well as new commercial ordinances that may be developed.

LEARN MORE:

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www.boulderenergyfuture.com

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NOTES

City of Boulder

CAP

BOULDER'S CLIMATE ACTION PLAN

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